

A NEW SPECIES OF *PROBOLOMYRMEX* (HYMENOPTERA: FORMICIDAE) FROM GUANACASTE, COSTA RICA

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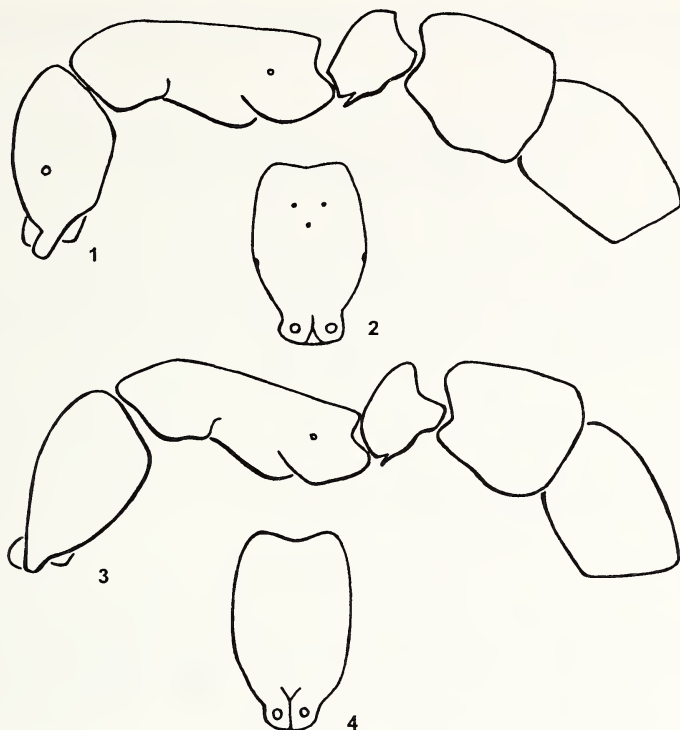
Abstract.—*Probolomyrmex guanacastensis* (n. sp.) from Guanacaste, Costa Rica is described from a queen and worker collected from sifted leaf debris in a riparian habitat. This is the fourth known species of *Probolomyrmex* in the New World extending the northern distribution limit from Barro Colorado Island, Panama to Guanacaste, Costa Rica. It is also the first record of an ergatoid queen in the *Probolomyrmex*. A revised key to the species is given.

The genus *Probolomyrmex* was recently revised by Agosti (1994) for South America and Taylor (1965) for the world. Three species have been described from South America (*P. boliviensis* Mann from Barro Colorado Island, Panama, and Bolivia; *P. brujitae* Agosti from Argentina; and *P. petiolatus* Weber from Barro Colorado Island, Panama). This new species was found while conducting a survey of an ant fauna in riparian habitats near Bagaces, Costa Rica, and represents not only a northern extension of the range of members of the genus from southern Panama to northern Costa Rica, but is the first record of this genus for Costa Rica. No further *Probolomyrmex* spp. were collected in South America, despite extensive leaf litter and soil core samples around Manaus and in the Atlantic Forest in Brazil. The total of more than 2,000 samples so far, which led otherwise to the discovery of extremely rare new species of leptanilloidine ants (Brandão et al., 1998), and the presence of an ergatoid queen, makes it worthwhile to describe this new species.

The format follows that of Agosti (1994) and indices were calculated according to Taylor (1965).

REVISED KEY TO THE SPECIES OF NEOTROPICAL *PROBOLOMYRMEX*

- 1. Petiole in lateral view with a ventral, rectangular process *petiolatus* Weber
- Petiole in lateral view with a ventral process directed towards the mesosoma 2
- 2. Larger body size (TL > 0.95 mm), longer scape (SI > 105). Sculpture with large pits with chagrination in between. First gastral segment ventro-anterior with a distinct collar which is bent ventrally. Head with a distinct carina along the posterior ventral face, which is darker than the adjacent surface. Ventral process of petiole in lateral view distinctly more darkly colored than the tergite *boliviensis* Mann
- Small body size (TL < 0.95 mm), short scape (SI < 105). Sculpture fine and densely set. First gastral segment ventrally without a collar. Head with a bulge along the posterior ventral face, which, in lateral view is not darker than the adjacent surface. Ventral process of petiole in lateral view of the same color as the adjacent tergite 3
- 3. Head smaller (HL 0.57–0.60 mm, HW 0.35–0.36 mm), scape shorter (SL 0.35 mm) *brujitae* Agosti



Figs. 1–4. *Probolomyrmex guanacastensis* n. sp. 1–2. Ergatoid female (paratype). 1. lateral view. 2. head in full frontal view. 3–4. Worker (holotype). 3. lateral view. 4. head in full frontal view.

– Head larger (HL 0.63–0.65 mm, HW 0.39–0.40 mm), scape longer (SL 0.40–0.41 mm)
 *guanacastensis* n. sp.

***Probolomyrmex guanacastensis*, new species**

Holotype: 1 worker, Costa Rica, Guanacaste, 8.5 km NW Bagaces, Plazuela Hacienda Monteverde, 31-VIII-1996, S. O’Keefe, sift leaf debris. Holotype deposited at InBio, Costa Rica.

Paratype: 1 queen, same data as holotype. Deposited in American Museum of Natural History.

QUEEN. HL 0.63, HW 0.41, SL 0.40, TL 0.81, CI 66, SI 97, Figures 1, 2 (1 examined).

WORKER. HL 0.65, HW 0.39, SL 0.41, TL 0.79, CI 0.60, SI 106, Figures 3, 4 (1 examined).

Comments: This species is easily separated from *P. petiolatus* by the shape of the petiolar process, and from *P. boliviensis* by the smaller size, shorter scape, lack of a gastral collar, and similar coloration of the petiolar process and tergite. The ergatoid

female has eyes and ocelli, but flight sclerites are not developed. This species is phenotypically very similar to *P. brujitae*, but differs in having a relatively larger head and longer scape.

Despite repeated sampling in July 1995, February 1996, and July 1996, only two specimens were collected of this genus from the type locality and none were collected in nearby localities of similar habitat. The specimens were found in sifted debris processed through a modified Berlese-Tulgren funnel from a riparian habitat that included *Ochroma pyramidale*, *Albizia samen*, *Anacardium excelsum*, *Ceiba pentadra*, *Hymenia courbaril*, *Bursera simiruba*, *Andira inermis*, *Spondias mombin*, *Sweetenia macrophylla*, *Cedrela odorata*, *Enterobium cyclocarpum*, *Hirtella racemosa*, and *Ardesia revoluta*. This site is unique in that numerous (>150) specimens of *Homoconnus* (Coleoptera: Scydmaenidae) were collected, while less than five were collected at all other sites sampled combined.

P. guanacastensis is the first record of an ergatoid female in this genus, in which all the other known sexuals are of the normal winged type (Taylor, 1965). This species belongs to the exceptions among ants with ergatoid queens, which normally have large colonies (Peeters, 1997). The only completely collected colony so far included only 20 workers (Taylor, 1965: 360).

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